The Berliners claim for the Medical Faculty of Beir University, at the present time, a higher rank than for any other in Germany, indeed in Europe, b most departments of sound medical science. As a whole they say there is no other that stands nearly upon the same hight. From my constant intercourse with medical men and students during the last ten years, coming here from all nations and est of all the principal Universities of Europe, I incline to think that the Berliners are not alone in their opinions. The division of labor is such that men can devote their lives to some single subject of investigation, and this they do, throwing all old theories to the winds and admitting nothing as true which is not based upon actual observation. The system of most thorough, scarching examinations, which every candidate for admission into any of of the professions must pass through some three or four (not even an apothecary being allowed to open a shop who cannot pass a severe cross-examination by a Committee appointed by Government), forces every physician to acquire a very extensive theo-retical and "book" hoowledge at least of his profession. The react registry, also, which is made fession. The react registry, also, which is made of every student, his prigress, his general character as a man of intellect, and skill, and judgment, enables the Ministry, in whose hands are all the appointments to the Universities, to select the first appointments to the throughout Prussia-indeed, one may almost throughout Germany-to fill any vacances which occur in the faculties of any of the great institutions of learning.

If the Faculty of Medicine here is not the first in

Germany, it is not from any want of exertion on the part of the Government to make it so. Whether its rack in the practice be as righ as in the theory of me icine and surgery, is a point upon which I will not undertake to decide; but where greater operators than Lungenbeck and Graepe are to be found is a question bard to answer. The fact is, medical study and investigation here

have escaped from the trammels of the schools and acquired an American freedom. The jurists and acquired an American freedom. The past, and the sineteenth century must in Germany lie on the bed of the sixteenth. But the student of medicine here snaps his fingers at the past and puts his questions to the subject of to-day, to the dis-cases now in the hospitals, and not to the writers of old worm eaten tolios.

The character of the studies of the present Berin Medical Faculty is due to the influence of the instructions and examples of Johannes Muller, whose death took place one year ago, April 28.
Muller may be said to be the first who devoted bimself to the improvement of medicine—having first hid a foundation for his labors in a vast and all-en.bracing study of the litersture of the science, on-cmoracing study of the intersture of the science, combined with closest study of the animal king-dom, from man downward—by emancipating him-self from all old theories, and assuming as his fundamental principle that medicine is a science subject to laws as distinct and decided as those which padeling algorithms. which underlie chemistry or physics. He was a sort of practical Lord Bacon in the medical world.

Müller may be considered the man who gave the impulse under which medicine has come to be considered as in fact one of the natural sciences. in a great glory of Germany, especially North Ger-many, that the success of a scientific man or artist does not depend upon birth or station. Rauch, the

Scalptor, was an instance in art; Müller was another in science.

He was the son of a poor shoemaker of the small City of Coblen'z, on the Rhine—in Europe a very low origin—and was born July 14, 1801. Like Cuvier, who was born not far from the Rhine, in Alesce, at that time a German territory, Müller, in the set ools and the gymnasium, to which he tather, and afterward his widowed mother sent him, with great difficulty obtaining the pecuniary means for this, lad in view theology. He was at that time destrict to be come a Catholic priest. In the Au-tume of 1819 he went down the Rhine some 30 bolles, and entered the University at Bonn. But during the years that the youth sad been passing through the dry, barren class-s of a Jesuit school, whose methods of instruction had known little change since it was established in the middle ages, he had nourished his mind in his leisure hours the literature of the day, especially Goethe, then in his most productive years and with collecting and studying plants and animals during his walks. The idea of the pri-sthood had become disagreeable; he had doubts; the old scholastic theology are med to him but husks. After three days of instance, and withing the parties, he said to a lecision and weighing the matter be said to a brend, suddenly: "I have decided; I will study freind, suddenly: "I have decided; I shall have, medicine; I shall at any rate, how what I have, medicine; I shall at any rate, how what I have, so the church lost him, as " and whom I serve." rmerly lost Buerhaave and Cuvier

Muller took his degree in 1822, being then 21 years of age. Just then philosophy was the fashion. Everybody was philosophical. "Through "Schelling's Natur-philosophical, everybody had "learned to trace back all phenomena to the idea of the absolute." In Germany, at least, medical science seemed likely to degenerate into pseudo philosophical consense. Müller had by nature, and emprecally by his education, a strong tendency in especially by his education, a strong tendency in the same direction, as his dissertation written for his degree shows. Fortunately at this time he had State examination. Here the two men who had the greatest influence upon him by their lectures—as Goethe and Humboldt by their writing—were Hegel, the Pailosopher and Rudolphi, the great physiologist. "Rudolphi," said he, at a later period, "was, in his tendencies, mainly anatomical to Berlin to finish his studies and pass h riod, " was, in his tendencies, mainly anatomical and skeptical." This man's influence made Müller. He went back to Bonn another man, and, on the 19th of October, 1824, became a "Privat Docent"—a sort of tutor—in the University there. Even at the risk of making this letter too long,

Even at the risk of making this letter too long, I must translate a few lines from Virchow's admirable culogy:

"Here, in his public lectures, he avowed his new creed. He speke upon 'the necessity of a system of 'physiology, founded upon a severe philosophical ob'servation of nature!" He proved that neither the mythic nor the mystic treating of the subject, nor the 'faise naturphilosophie,' nor the rationalistic, nor the ideal physiology was the right."

With Agassiz in mind, read the following, which With Agessiz in mind, read the following, which

With Agassiz in mind, read the following, which Virchow quotes from one of Müller's works:

"The study of nature has, in itself, a sort of religious element; I mean by this it has its forms of worship. I think we may say it has its imperishable Priesthood. There is an experience which has its basis in ideas alone; and from our experiences again spring immediately ideas, because these act like the institutions of an extablished form of worship. This modest, simple viewing of nature, which is in its own sature torced to perceive in all things only the real, and in their phenomena, only the true, is the sense of the naturalist, and especially of the physiologist. Let such a spirit observe or experience what he may, he finds more than the object apparently offers to the scuses; and, as he was led to his observations and experiments by ideas, so they carry him back to ideas again. As instances, see Alexander von Humboldit's 'Views of Nature,' and the natural historical works of Goethe. Experience makes the spirit pregnant. Abstract thinking apon nature is not the province of the physiologist. Physiology observes nature, to make her the subject of his thought."

For three years the young man's labors we're

For three years the young man's labors were gigantic. He at first practiced medicine, though, as the number of his ectures increased, he seems to have given this up. He lectured upon general and comparative anatomy, physiology and embryology general pathology and pathological anatomy, and even at one time upon discases of the eye and ear! At might he studied and wrote, and when making his investigations upon certain phenomena of vision, he excited his nerves purposely by the use of strong coffee. In 1827 his health broke down; but, aided by Government, he was able to spend some time in travel, was at length restored apend some time in travel, was at length restored to bealth, and returned to his duties. In 1830 he was advanced to the rank of Extra Professor at Bonn.

In the Spring of 1832, Cuvier, at Paris; in the Autumn of the same year, Rudeiphi, at Be ha, died; and the son of the widow of the Coblentz Shoemaker, a young man of but 31 years, was the greatest comparative anatomist on the Continent of

PROGRESS OF MEDICAL SCIENCE IN

GERMANY.

GERMANY.

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Germany.

Müller and a few friends fest that he was the man to full it, and he addressed such a paper to the Minister at Berlin, as to lead that functionary to a spoint the young as to lead that functionary to a spoint the young and comparatively unknown man to it. To give him the needful lessure for his studies, observation him the needful leasure for his studies, observations and experiments, other professors were appointed, and Müller was able to go on and add paper to paper and work to work in that long series which appeared during his twenty-six years at Berlio of incessant study and activity. He was naturally a man of strong fancy. During his illness in 1-27, however, he was alarmed to discover how great a ruling power this had become in his intellect, and from 1830 oward he ruled it with an iron will. 1830 oaward he ruled it wits an iron will. from 1830 onward he ruled it with an into Ferhaps the success which attended his investiga-tions was in some degree owing to this very fact, as it led him so carefully to prove everything which appeared to him as a discovery. Perhaps, after all, better than by any enumeration and dis-cussion of his works, which would be out of place in a more letter, can the man's greatness be estithrough the pupils whose studies he directed. What influence he directly exerted upon Agassiz, I do not know; but nearly all the most Ages 22. Age medical professors in Germany are of his school; of physiologists there are Ludwig and Brucke in Vicona, Helmbolt in Heidelberg, Reymond in Berlin; Heule, one the first of anatomists, and the founder of microscopic anatomy, in Göttingen; Reichert, occupying the same position at Breslau, and Virchow, Professor of Pathological Austomy at Berlin. Dubois Rey mond has made the electricity of the nervous system his special study, and is now finishing the third volume of a great work on that subject (Untersuchungen über ihrerische Electricität) which wil benceforth, it is said, render the physiology of the nerves a branch of physical electricity. I remem-ber, however, that there is an excellent summary of his investigations in the admirable article on at of his investigations in the admirable article on an imal electricity in the first volume of the "New American Cyclopædia." It is claimed for Virchow, that he is the first who, discarding all fanciful theories, has placed pathological anatomy—the admirable study of the phenomena of the disease, as exhibited in the dead subject—upon a truly scientific basis. In this following Müller, his master explaining no facts that come under his observa-tion by any preconceived notions, but leiting then explain themselves and one another by degrees. heve all our medical students in America agree

> very important influence upon medical views in From a paper in h s own handwriting, which is not the easiest to decipher, especially in a foreign tongue. I draw a few biographical particulars.

in finding the lectures upon pathology the least in-

teresting of all in their medical course-those upon

materia medica of course excepted. Here, how-ever, the case is different. Rockitaosky gave the

impulse at Vienns, "but," as a friend of mine wr te me, "Virchow's labors bear about the same "relation to those of the Vienna school as old geo-

graphical works do to the scientific geography of

receptly, was that upon "Inflammation of the Arteries." which is a deathblow (here at least) to the

old notion of sympathetic sickness, and is having a

day." The leading work of Virchow, until quite

Rudolph Virchow was born Oct. 13, 1821, at Schievelbein in Pomerania. He was from a child very fond of Natural History, and especially of Botany; and this tas e led him, after the usual gymnasial course, to enter the University at Berlin in 1839, where he studied under Müller, Schön lein, Dieffenbers, &c., taking his degree, Oct 21, 1843. He immediately entered the great hospital here—the Cusrité—as assistant physician. He was very soon appointed microscopic and chemical examiner in the deat-house and soon after. Assistant Professor of Pathological Anatomy In 1846 he acted as prosector in the Charite—to which office he was regularly appointed in 1847; and in the Summer of that year was admitted Privat

Docent in the University.

We en the outbreak came in 1848, Virchow found upon the liberal side; and the part he took in the (locally) famous elections of 1849 led to his in the (locally) lamous rections of 1849 led to his dismissal from the University; but, young as he was—only 28 years of age—he was already widely known by his writings, and was at once called to Würzburg to the Chair of Pathological Austomy.

In 1851 he began a series of investigations mi croscopic and chemical into the nature of the croscopic and chemical into the nature of the cellular tissues, cartilages, bone, &c., which are still kept up, and which have led him to an original system of pathology. In 1856, the Pathological Chair being vacant in Berlio, that same Ministry—the piets the reactionary Manteuli-l(titerally, man-devil) Ministry whose recont ful has made the faces of marky all Berlin brighter—their own are long enough God knows!—could do no otherwise than recail Vinchow and give him carte blanche to 611 it. He had been for several years laboring for fill it. He had been for several years laboring for a reform in the medical department of the Universities, and only upon condition of full permission to place his department upon such a basis as he judged proper, would be come back. The Ministry had to yield, and Virchow came.

of more than two years, and visited as old friend in the Charite, I found the little old dead house enlarged into a fine, commedious two-story building through which my friend took me. It is now Virehow's Pathological Institute, and its like is found nowhere else. In the basement are th rooms for subjects-of which there is never any want in a city of 450,000 inhabitants—one of these rooms being devoted to such as are to be examined order of the Courts. The arrangements for their preservation are excellent. The principal rooms above are the Protessors' Lecture-room, a room for microscopic examinations, another for chemical examinations-admirably fitted uppost mortem room, and the reading room, where all the medical hterature of the day is found. The room for microscopic demonstrations is a model. It is but some 20 feet square, yet the tables are arranged comfortably for some sixty students. The tables are so connected that a miniature railroad starts from near the Professor's desk, whence, on a small car, the microscope, with its preparation, passes from student to student, and busily comes back to the starting point. I have found THI TRIBUNE so generally read by medical men wherever I have been in the United States, that I venture to add some further particulars in regard Virchow's course of instruction.

He has two demonstrative courses; one in which the pathological preparations are brought before the class and their peculiarities explained and illustrated upon the blackboard—portnoss of each specimen at the same time passing round the rail-road under the microscope. This course includes also an explanation of the processes by which the pathological conditions under observation have been produced. The other course is purely microscopic, and treats only of Pathological Histology. In this each student is provided with a microscope and makes his own preparations, and the appear ances of each as seen under the instrument are explained by Virchow or his assistant. There is also a daily lecture on Pathology and Therapeutics, and a weekly lecture on the general subject.

In his laboratory is given a practical sourse on Chemistry as bearing upon Pathology, a topic nearly new, but which is proving to possess great interest and importance.

I said above that Virehow began a series of in

restigations upon the tissues of the human body in 1851. These have led him to opinsons peculiar to him, but which are fast gaining currency. He had lectured but about three terms in the University tion, most flattering to him, from all the principa physicians and surgeons of the city, to present them with the experiments, observations and rea sonings upon which they are founded in a series of lectures. Virchow accepted the invitation in the Spring of last year (1858). Owing to the pressure upon his time these lectures were extemporaneous short-hand writer took them down, and, with such revision as their author could find time to give them, they were published about eix months since, under the title of "Ceilular Pathology."

To say that his opinions are already adopted by that they have created a great exciteme appropriate circles, is true. Three months ago men were at work translating the "Cellular Pathology" into French and Russian, and Virghow is a'ready at work upon a second edition of his book-some-thing remarkable in Germany. His numerous

other writings had, however, prepared the way for

One service to science this book, at all events. accemplishes—that of stripping pathology of its complicated web of terms, which, arising at different periods in the progress of investigation, contin-ually clash with each other and present a serious obetacle to the study of the subject, not permitting obstacle to the study of the sunject, not permitting one to reach the present knowledge of it except through the weary path of exploded theories—a process necessary for understanding the terms to which they have given rise. Virchow's work is simple and clear, his terminology exact and well adapted. I hardly dare venture the attempt to give an idea of Virchow's fundamental principle.

Virchow defines the cell as an exceedingly mi nute microscopic object, consisting of a men containing a substance in which is a nucl-us upon which the action of the cell depends. All path ic I processes proceed from changes in and multi-plications of previously existing cells. A cell can only arise from a preexisting cell, and never de novo. The germ of life is a cell transmitted and impregnating an even. The whole scheme of animal development, both physiological and pathological, is but a continuation of the process begun in the ovum upon the cell—the first step in gestation. He denies the formation de noto of "granules," or any other tissue form of the old pathologists, from so-called Blastema or of homogeneous exudation. That is, since the creation of Adam and Eve, the race has been kept up by, and ever, physiological and pathological phenomena has had its origin in, the division and multiplication of cells—the difference between the phenomena of physiology and pathology being only that of normal or morbid action in similar forms.

The work consists of twenty lectures, the first

few of which may be called Cellular Physiology, and are the basis of the bulk of the work. Some of Virchow's admirers go so far as to say that his investigations and discoveries will, in the end, work some such change in the science of medicine as Harvey's discovery of the circulation of the

A. von Graepe is popularly far more extensively known than any other of the younger class of professors; naturally enough, because his branch of the science is one which brings him more in contact with people of all classes and conditions. He is the great eculist of Europe—of the world, asked Dr. J. F. Noyes, an American physician asked Dr. J. F. Noyes, an American physician, who had spent much time with the noted oculists of Progue and Vienna, how they compared with pe. "Nobody like Graepe," said be. Another Noyes—of New-York—said the same after spending some time with the celebrated Demar-s at Pars. Dr O-muo, of Cleveland, Onio, after studying at Strasbourg and Leipsic, with Stoeber Raete and Coccius, gives the same testimony. Graepe has for several years had a clinic of his own, where one sees every possible form of disease of the eye treated, with astoni-bing rapidity, and with success equally astonishing. The poorest peasant who pays no fee is as tenderly and skillfully handled by him and his assistants, as the Russian prince or princess whose large gifts support the clinic. beard, both now somewhat streaked with white, quite long. His face is rather thin, but the features large and full of strength. He lacks no quality whatever necessary to make him the most gloved as well as respected of practitioners and instructors. I have known many of his students, and there is no shade of diversity in the manner in which all speak of him. It is beautiful to attend his clinic, and see the firmness and with it the tenderness, the instant decision, and yet invariable correctness with which he meets the uninterrupted succession of all sorts of cases which occupy the hours devoted to this object. Gasepe is a true disciple of Johannes Müller. All old theories are thrown to the winds. The facts which he has noticed in the more than a hundred thousand discased eyes which have come under his observa-tion—these are the basis of his practice. His own treories he will not publish as yet, though, as I happen to know, he has some very important works in manuscript. Occasional articles he has printed,

but beyond to is he will not as yet commit himself.

In his clinic he is assisted by a number of his
best pupils, and the establishment is now doubtless the best school for diseases of the eye, in all their forms, that the world can show. Everything that one needs know of theory sod practice in this class of diseases is fully and thoroughly taught. Many diseases betherto considered incurable no longer ther difficulties.

The reader probably pictures to himself a man The reaser probably pictures to himself a man of some fifty years, perhaps more. Graspe was bern in May, 1828! His father was the Geheim-erath von Graspe, Surgeon-Generakin the Russian army, who died in 1840, when his son was but 12 years of age. He left a targe property, and his widow was able to spare no expense in obtaining the best private teachers for her son. Mathematics was his private study, then natural philosophy and chemistry, then medicine. He took his degree at the Berlin University in 1848; studied diseases of the eye with Arit at Prague, with Jarger at Vienschools at London, Dublin and Edinburgh, and, hav-ing exhausted all that Europe could give him in slightly pungent, and as agreeable as that of ether: this branch of medicine, returned to his native city and established himself; with what success, I have

Another young man, Dr. Ludwig Meyer, of the school of Mü-ler, has devoted himself to the investigation of mental diseases; with good success we may suppose, since a small work published by him may suppose, since a small work published by him last year led directly to his appointment as director of the insane department of the huge hospital at Hamburg. By the way, this department alone in that great establishment has hitherto been neglected, and to such an extent, indeed, as to be a disgrace to the city. Of more than 500 insane patients at least 200 are crowded into the basement and cellars of the hospital, with no regard to classification. sification. As a measure of economy, if for no other reason, the proposed erection of a fine, large, sity building for the accommodation of at least half the patients should not be deferred. Under present circumstances families are unwilling to place their meane members in the hospital until they become incurable, and must be removed; whereas, were the accommodations good, the insane would be at once given into the bands of the physician, and, in many cases, soon cured.

The work of which I spoke is a reportupon a long series of observations upon insane patients, in rela-tion to the heat of the body, and the theory of insanity which these observations go to establish.

If I have mastered the leading ideas of Dr.

Meyer, they are, in few words, as follows:

All mental disease is accompanied by some corresponding abnormal physical condition. I give this very general form of statement because I am not quite certain that he makes all mental disease essit of physical abnormal condition; but I think be does.

All mental diseases fall into two great classes. In the one the mental action exhibits a state of the intellect below the normal intelligence—there is evident weakness or confusion of mind. This diseased condition is idiopathic—comes from the brain.

If, it case of any patient of this class there appears
a state of excitement, this excitement indicates at once fever.

In patients of the second great class, the mental strength is not below the normal standard, but the intellectual activity is wrong in direction. The insanity bere is "sympathetic or reflected"—that is, it does not arise from a diseased brain, but the cause is to be sought in some other organ or part of the body-the organs of generation, the digestive

Wile Assistant Physician in the Insane Dapartment of the Charité at Berlin, Dr. Meyer made the degree of heat of the bodies of several of his pa-tients. For this purpose he had delicate ther-mometers constructed, some to be used in the mouth, others is ano. The tables of observations show with remarkable uniformity how a change of temperature procedure (or other). temperature precedes (or at all events attends) such changes in the mental condition of the patients as belong to one or the other of his two great

Dr. Meyer was lecturing upon this subject particularly, and upon insanity in general, as Privat Docent in the Berlin University, at the time of his call to Hamburg. In his lectures he cast aside all the theological and philosophical theories of the old schools, and aimed to trace all mental disease to that of the physical system. His lectures were largely attended, and his acceptance of his new

position is considered a great loss to the medical school here. I had the pleasure of seeing this gen-tleman recently in Hamburg, and was delighted to find how highly be thinks of the American In-ane Asylume. Perhaps his views will not prove new to our own physicians; if they should, however, it would be worth the while to make observations to verify or disprove them. I will add a biographical notice or two in relation to him, as I have done with Virchow and Graepe. Dr. Meyer was born at Bielefeld, in Westphaha, in 1828. His gymnasial course to made at a Jesuit College in Paderborn, where, in eight years, he learned Latin well, but no modern larguage, speaking and writing, even his ewn native German, "miserably bad." In the Spring of 1848, he went to Bonn to study medicine; but there, with all the arder of a yout of twenty, he joined Carl Schurz (now of Wisconsip) Kirkel and the rest in the revolutionary movements. In May, 1850, Kinkel and Meyer, the professor and the pupil, were placed on trial for

their lives at Cologne.
Young Meyer argued his own case, asking so mercy, but basing his plea solely upon law and jus-tice, and this with such effect that the Jury acquitted him at once. Virchow, as stated above, had been dismissed from the Berlin University, an was in Würzburg, and thitner Meyer went to study pathological anatomy. Thence he came to Berlin, where he came under the influence of Müller, Reinbart, Meckel and Traube. He soon distinguished bimself, and, in 1853, a place becoming vacant in the insane department of the Charite, he left his previously-chosen field, pathological anatomy, and devoted bimself exclusively to the study of insanity-a subject in which he felt there was, a least in Germany, an opportunity for an investi-gator to gain distinction. In 1855 he was sent as test assistant to the new Insane Hospital at Schwetz in East Prussia, where, in fact, he had almost the entire charge of bringing the establishment into good working order. He returned to Berlin two years a terward to the Coarité, and be-came Privat Docent in the University, whence he was called to Hamburg. I am told that his writings in the medical periodicals have been thought wor-thy of being collected into a volume. I have not, wever, seen it.

It is a pity that some system of interchange of reports and other writings is not brought into op-eration, by which the great hospitals here and with us could at all times know went is going on on the other side of the water. Dr. Meyer, for instance, expressed a great desire to have the annual report of the Insane Hospitals, especially of New-Y rk and Massachusetts. I should think that such and Massachusetts. an interchange might be effected through our Consuls, to the benefit of science in both countries.

## HEALTH AND DISEASE.

WOOD CHARCOAL AS A DEODORIZER.-The last report of the Commissioners of the London Sewers contains the following testimony-of especial importance, now that the hot season is approaching, respecting the value of wood charcoal as a deodor-

"We have," says the report, "in common wood "We have," says the report, "in common wood charcoal a powerful means of destroying the foul gases of sewers. How it is to applied, is a question of little en barrasement. Ventilate the sewers as you will, either by the open gratings in the streets, or by the rain-water pipes of the houses, or by the pillars of the gas-lamps, or by tubes carried up at the landford's expense from the drains of every house, or by special shafts in the public streets—in fact, let the gases go out the sewers how they will and where they will, you have but to place a small box containing a few pennies' worth of charcoal in the course of the draught, have but to place a small box containing a few pennies' worth of charcoal in the course of the draught, and the purification of the air will be complete. As far as we know, the strength and endurance of this power are almost unlinited; so that, when once the air-filter has been set up, it will last continuously for years. Its action, also, upon the draught, is not particularly injunious. The temperature of the sewers, and the agencies which are now at work in circularing the air and ventilating them, will be sufficient to keep up a current of foul air through the filters; and if these were multiplied to a large extent, the friction of the gases multiplied to a large extent, the friction of the gases upon the charcoal would be reduced to an insignificant

ASESTHESIS BY CARBONIC ACID. - M. OZABAM Pro poses the inhalation of carbonic acid, mixed with a certain quantity of air. He states that the effects of carbonic acid are similar to those of ether, but more fugitive; and while, with the latter, the inhalation should be interrupted at intervals, with carbonic acid the reverse is true. He affirms that, as long as it is wished to prolong the sleep, the inhalation should be continued; that they may be continued ten, twenty, thirty minutes or more, without danger to life. On ceasing the inhalation, waking is almost immediate. In these experiments, no case of sudden death has been observed, as in chloroform. When death is in prospect, it comes slowly, and may be foreseen for a org time in advance, and its progress noted by the state of the head and that of the pupils of the eyes. Messrs. Ferre and Ozanam have respired the gas sev eral times-if not to the production of sleep, at least it excites salivation. It is proposed to adopt it, in surgical practice, as the least dangerous method, and as sufficiently efficacious in ordinary cases.

FACTS CONCERNING RESPIRATION .- Dr. Edward mith has communicated to the British Royal Society the results of twelve hundred series of observations in regard to the quantity of air inspired throughout the day and night, and under the influence of exercise, food, medicine, temperature, etc. The author himself was the subject of all the investigations. He is 38 years of age, six feet in hight, healthy and strong, and with a vital capacity of the lungs of 280 cubic inches. From this communication the following facts are derived:

The total quantity of air inspired in 24 hours -allowance being made for intervals, amounting altogether to 40 minutes, during which it was not recorded -was 711,060 cubic inches, or an average of 29.627 cubic inches per hour, and 493.6 per minute. The quantity was much less during the night than during the day. There was an increase as the morning advanced, and a decrease at about 8j in the evening, but most suddenly at 11 o'clock at night. During the day the quantity increased immediately after a meal, and then subsided before the next meal; but in every instance it rose again immediately before a meal. The rate of frequency of respiration generally corresponded with the quantity, but the extremes of the day and night rates were greater. The period of greatest parallelism was between tea and supper. An increase was occasioned by one meal only-namely, breakfast. The average depth of respiration was 26.5 cubic inches, with a minimum of 18.1 cubic inches in the night, and a maximum of 32.2 cubic inches (at 14 o'clock) at night. CAUSE OF THE FLUIDITY OF THE BLOOD .- Dr.

Richardson, a London physician of some celebrity, has published a valuable paper on the cause of the fluidity of the blood. The point of Dr. R.'s researches consists in the discovery of the volatile alkali, ammo-nia, as a constituent of the living blood, and its escape from blood abstracted from the body. The author relates a long series of demonstrative experiments. all proving not only that ammonia is present in the blood, but that upon its presence the solubility of the fibrine, and, therefore, the fluidity of the blood, depends. The peculiarity of this demonstration of the cause of the fluidity of the blood is, that it explains the different hypotheses which have previously been offered on this question, and shows in how far these hypotheses have approached or fell short of the truth. Dr. Richardson points out that ammonia, in combination with carbonic acid gas, is a constant constituent of the air expired in the breath. The presence of ammonia in the animal economy, and its evolution in respiration, is of interest, is that it connects more closely the limit that exists between the animal and vegetable worlds. But the subject is of the greatest importance in relation to the causes, nature and treatment of various diseases.

Poisosous Properties or Brise .- Some time ince, M. Reynal, of the Veterinary School at Ayort, France, communicated to the Imperial Academy of Medicine the results of investigations made by him upon the poisonous properties acquired by brine, after a considerable length of time, in which pork or other meats had been salted or pickled. The poisonous pre-perties, he states, are acquired in two or three neutte after the preparation of the brine, and its us then, mixed with food for any length of time, even although in small quantities, may produce death. A simple solution of salt in water, after the same length of time, does not produce the same effect. The poison acts as a local irritant, exciting violent intestinal congestion and inflammation. It likewise increases the secretion of the skin and kidneys, and exerts a direct ffeet upon the nervous system, giving rise to trembling, loss of sensation, convulsions, &c. On the ther hand, investigations of a chemical and physicegical nature, into the effects of brine, made by French and American physicians, do not confirm the opinions thus put forth by M. Reynal as to the poisspous character of brine preparations when used as a condiment or seasoning for food.

EPIDEMIC DIPHTHERIA .- The London Lancet contains a report on Diphtneria, which traces its origin to period long antecedent to Hippocrates, and nearly coten porary with Homer, it being known then as Malum Egyptiacum. It refers to similar epidemics in Rome, A. D. 380; in Holland, 1337; in Spain, 1660; in Naples, 1619, when, out of a small population t carried off five thousand persons. Diphtheria, it would appear, ravaged New-York City in 1771 and 1813. From careful study of the French epidemics since that of Tours in 1824, Diphtheria would appear to have traversed nearly all the Departments, passing from the south littoral districts toward the center. The \* pidemics which appear most closely to resemble those which have occurred in England, are those of Paris and Boulogne in 1856. Both in England and France, Diphtheria has shown itself regardless of meteorological, climatic or cosmic influences, and careless of limitation, heat, cold, dryness and moistire. Its course has been from the south-ast counties toward the center of the country, and then toward the north. Its violence is equally aggravated by demestic uncleanliness, certain predisposing individual conditions, and want of hygienic arrangements.

ANESTHESIA IN INSANITY .- Dr. Tyler, Superintendent of the McLean Asylum, Massachusetts, in his last annual report, says of the use of other in that institution: "It is daily proving itself a valuable agent in the treatment of insanity. So far as I have learned, no accident or uncomfortable occurrence has ever resulted from a discriminating use of a pure article. The object of etherization with us, I hardly need say, is the tranquilization of the nervous systemthe producing of sleep-or, if not sleep, repose and, therefore, in the various forms of mania, melancholia, and hypochondria-of which persistent and protracted vigolance is both an attendant and feeder, and consequent exhaustion endangers life and where, as is often the case, all ordinary medication has proved utterly unavailing-ether is found to be invaluable and effectual, causing more than a mere temporary effect of quiet and sleep, by a general soothing and curative influence."

PROFESSORSHIP OF ANATOMY AT WARSAW. Hirsel feldt, the Chef de Clinique de'l Hotel Dien, and great writer on the nervous system, with whose magnificent work on the anatomy of the nervesevery anatomist is familiar, has been lately appointed Pro fessor of Austomy in the Imperial Academy of Warraw. The appointment is remarkable from the fact that it is the first instance of a Jew being allowed to hold office in Russia. The position was first offered to him on condition of his becoming connected with the Greek Church, which he refused, and the condition was afterward waived.

## INDUSTRY, SCIENCE AND INVENTION.

AN AMIABLE IMPLEMENT .- Things must be mending in England. They can't be as bad as they were in the days when Daniel Doyce was snubbed by the Circumlocution Office for boring them with a useful invention, and Arthur Clennam afterward for taking up his cause. An inventor has been rewarded muniis own accord to refresh and encourage him. The Queen herself, of her own mere grace, and by her own personal and special desire, laid the honor of knighthood on his shoulder, and the simple member of a machine-making firm, as we gather, rose up Sir William Armstrong. And more than that, he is to receive £2,666 per annum for ten years, and his former partners—for whose society we presume he has grown too great—are to be guaranteed against loss in case the Government should not order enough of their pleasing inventions to remuserate them for their outlay. The pretty thing which Sir William has devised, and which has so pleased her Majesty and her loyal Commons, is a new description of great gun, one of the chief virtues of which is that it is so small. Queen Anne had her Pocket-piece, which may still be seen by the curious, but that was a mere clumsy curiosity, of which is that it as one will be seen by the curious, but that was a mere clumsy curiosity, of which is estimated to refer the tone of the machine of the machine of the private of the private remaining the private of the private remaining the private of the private remaining the private remaining that the private studies and the private remaining the private ficently, and the Fountain of Honor has overflowed of no earthly use could be made. Queen Victoria's Pecket-piece, on the other hand, is light, airy, and graceful, agile in its movements as a serpent, and deadly and distant in the death it deals as a basilisk.

This interesting novelty is a rifled cannon, which to restore the Artillery to the relative rank among the agents of destruction from which it has been thrust by the improvements in the smaller arms. The Enfield and Minie rifles have put the noses of the great lumbering field-pieces out of joint. A field-piece, it seems, cannot be relied on for anything like accuracy at a greater distance than one thousand yards, while marks men armed with the Minie or the Enfield can pick off the gunners serving them at twice the distance. A single officer in the Crimea, on one occasion, compelled the withdrawal of two guns from a commanding position by keeping up a constant fire on the men in charge of them, his own men loading the pieces for him. The invention of Sir William Armstrong increases the efficiency of cannon over those ow in use in the same degree as the Minié rifle is surer and of greater range than the old Brown Bess. The Armstrong gun consists of a steel tube, strengthened by spiral strips of rolled iron laid alternately in apposite directions, and rifled in a peculiar manner, e number of grooves being much larger than i common rifled guns. It loads at the breech and is lightly wider there, so the projectile may be a little arger than could enter by the muzzle, which of ourse saves the windage and greatly increases the deadly accuracy of the aim and the fearful extent of its range. The most important part of the invention, however, was that of the projectile, which has overcome the difficulty supposed to be insuperable in the way of using rifled cannon. Lead balls are too soft and lose their perfect sphericity in their journey through the grooves. Iron, on the other hand, is too hard, and refuses to accommodate itself to their gentle solicitation. Sir William, by a happy marriage of the wo-the ball being of cast iron, coated with lead, and by making the projectile somewhat larger than the nuzzle-has produced a hybrid of the most satisfacery description and the most surprising efficiency. The experimental gun, which was made to show

that it could do, was a light field-piece carrying five-pound ball. At 1,500 yards, it hit the targetfive feet wide by seven high-every time, after it had got its proper elevation, and the elevation from a vercal line drawn through the center of the target was less than a foot. An ordinary six-pounder being entirely uscless at this distance, and the deflection of balls marked in the practice of heavy ordnance being noted in yards and not in inches, the range and accuracy of this gun was something amazing. Gen. Peel stated, in moving the Army Estimates, that the range of an 18-pounder, of Armstrong's construction, with a charge of five pounds of powder, was a little more than five miles and a quarter! And as to its accuracy, he stated that at 3,000 yards it was as 7 to 1 empared with the ordinary gun of the same weight at 1.000: while at 1.000 vards it was as 57 to 1, weighing, all the while, only one-third as much. Nor does this exhaust the catalogue of the virtues of this charming contrivance. It unites the delicate reserve of the shell with the robust bluntness of the cannon ball. By Yellow Springs, Ohio, April 13, 1856.

nice device of Sir William, a "a striker" within to ball is released from the pan that held it in placely the firing of the gun. When the ball meets with any resistance, however slight, the striker not being a fected by it still moves on with its original and carries a detonating material to the explosion and carries a detonating material to the explosion. fected by it still moves on with its original velocity, composition, which occasions the bursting of shell. But as a minute portion of time must elaborater the resistance encountered by the ball and the accomplishment of its mission by the striker, the prejectile moves forward a perceptible distance before is explodes. So a projectile aimed at a ship would per through its sides as a ball and then burst in the inside as a shell, thus doing double service. Or if brought to bear on an advancing army, it would do duty the front rank as a bullet, and then distribute its among the rear as grape or canister. This invention seems to have given rise to the meet

cheerful and animated articipations of the future vincibility of England. It is thought that it will a tirely revolutionize the system of warfare, and enable a much smaller body of men to give a much bigger one their gruel in a more satisfactory manner than in possible by the present cumbrous system. But are compelled to recollect that his Majesty, Empene Bonsparte, has been amusing himself lately at Viscennes with trials of rifled cannon which are to in deadly work in the war which seems so coquettishin its ways. And as the French are not as de tive as the English as to their public matters, we can not affirm that the French invention does not kill better than the English one. And if the brother and seter of France and England should come to fall que. some day, and change their brotherly and sisterly enbracings for the tug of war, tilting no more with him. but giving "bloody noses and cracked crowns" stead, we may find the pocket-piece of Napoleon's match for the pecket-piece of Victoria. But we will hope for better things. There is undoubtedly phis. sophy in what General Codrington said in this very debate, that this invention might do much to sare life, though not precisely in the sense he meant, saving English lives at the cost of those of their enmies who could be shot at leisure from a safe distant. But no such invention can be monopolized. It becomes the property of the world, and such an inprovement as this may have the effect on public was on the duello. It will put long arms and short arms, tall men and short men, big nations and little ones, a level. And when death becomes reduced by ence to a mathematical certainty, there will be much less eagerness to encounter it. It is all very well to seek the bubble reputation at the cannon's mouth; but when the cannon's mouth can reach the seeker to a dead certainty five miles and a quarter off, the bubble will seem less worth seeking.

SAWING CLOTH .- The immense expenditure in the British army accoutrements has, among other beafits, developed new machinery for making regiment by a wholesale process; a slender flexible saw is male to do the duty of the tailor's scissor. Pile up a hop of cloth containing 100 layers, squeeze the mass, the saw, which is worked by steam-power, can be b rected by a skillful hand so as to cut all the picce simultaneously as required for a complete suit.

To the Editor of The N. Y. Tribune.

Siz: In your paper of this morning, under the cap-tion of "Proposed Revolution in Car-Building." among the notes on "Science, Industry and Inves-tion," I find an account of the La Mothe Patent Is Car, which, in one particular at least, does less the justice to the invention, and I beg that you will all justice to the invention, and I beg that you will allow no space for a correct on. The body of an ordinary sized sixty-passenger car, built on this principal weighs but \$,000 to 10,000 pounds (independently of trucks and seats), while the corresponding part of wooden cars, with much inferior strength, weight 14,000 to 20,000 pounds. The saving of weight to be housed is therefore from two to five tuns in the La Mothe Passenger Cars. In Freight Cars it is from two to three tuns. It was patented, not in 1850, but in 184, and a reissue obtained in 1856. E. W. SARGEST, New York April 12, 1259.

A New Type-Composing Machine .- On the

an hour. One advantage of the machine which pointed out was that mistakes are less liable to our in setting up the type than by manual composition, a consequent y less time is spent in correcting. The chine is criticily very ingenious, and if on extendition is described in a brief inspection, it is not unlikely to have a geffect on the printing trade. [Liverpool Time]

Cheap Paper.—Dr. Collyer, whose reputate among paper-makers is assured from his successful plication of best-root refuse in their manufacture, recently alighted upon an important discovery, who by full fifty per cent will be saved in the manufacture of paper, made either from wheat or out straw, waste, or other similar refuse material.

The insuperable difficulty which has attended it use of raw fibrous sub-tances lies in the existends the silicious cortex which envelopes the fiber to rid of this silex; has been the object long desired sought after; for this desideratum being accomplish, the remaining fiber of common straw is equal, for paper-makers' purposes, to the best linen rage; in thonestly produces a stronger paper. Separation silicious matter may be effected, as our readers aware, by the use of strong alkalite solutions, accurate aware, by the use of strong alkalite solutions, accurate the str tain waste of cocostly material.

costly meterial.

Dr. Collyer, has, however, happily discovered a sin ple and inexpensive method, which entirely moves the silex, after the use of a weak alkaline solution and a process of boiling under a moderate process.

tion and a process of boiling under a moderate presure.

The straw or flax refuse, before being boiled, is submitted to the action of a machine, especially investigated for the purpose by this gentleman. This machine opens out the fiber, disintegrates the silicious corts, and prepares it for the production of pulp, from which can be made the best class writing and printing papers, at one-half the present cost.

The whole expense of preparing one tun of straw pulp, bleached it for conversion into the finest writing, printing, or book-paper, will not, by this process, second £12 per tun, or 14d. per pound; to which had the Excise duty of 14d. per pound, and we obtain the whole cost of making the substance into a page, which is now practically worth 7d. per pound, equal to that used by the leading journals. [London Spection.]

## USEFUL RECIPES.

To the Editor of The N. Y. Tribune.

Siz: I have been an interested reader of your sticles upon domestic cookery, from the first, and here

derived some benefit from their suggestions.

A few discoveries which I have lately made, thusband thinks, are worth publishing. I will see them, and you can do with them as you please. The are times when housekeepers in the country cannot tain milk, and the want of it interferes sadly with production of a great many almost indispensable law uries:

uries:

Custard Pies without Milk.—Beat together four ergs, four large spoonfuls of sugar, one small one of some of butter, a punch of sult, and spice to the taste, beiling water enough to fill a large sized pie pan, and immediately.

botting water enough to fill a large sized pie pan, and Immedately.

A STEAMED INDIAN LOAF.—Take one coffee-cupl of warm water, and dissolve in it one and a half tea-specialist sods, three cups of buttermilk, about two-thirds of a cup of leans molasses, a little sait, a small handful of flour, and remough to make it of about the consistency of mustine. Steam over a hot fire four hours, without lifting the steamer cover, as compiled with, the result will be the most delicious thing in shape of bread ever sent to the table.

MOCK APPLE-PIE.—Take one tea-cupful of breamer only a water, one and a half of sugar, one tea-could of tartarie sold, a little sait, and rimsmon or extract of lens Let it boil five minutes, then pour it boiling into pie piate like with patte, cover with the same, and bake immediately.

MOCK APPLE-FIR.—I and once teaching crumbs, two of water, one and a half of sugar, one learners of rartaric acid, a little salt, and cinnamon or extract of learners to the salt of the minutes, then pour it boiling into pie place learners with parts, cover with the same, and bake immediately, should be eaten the same day, as they do not keep well.

Mrs. J. A. CANSIELB.